

Remarks

Claims 1-39 are currently pending in the application. Claim 39 is a new claim. Please note that claims 3, 17, 20, and 27-35 have been cancelled.

Claim Objections

Claim 14 has been amended to remove the term "reactive" and the term "radioactive" has been substituted in its place. Proper antecedent basis for this term can be found in claim 4.

§102

Claims 1, 5, 6, 12, 15, 26 and 29 are rejected under 35 USC 102(b) as being anticipated by Gamba (U.S. Patent 4,063,089).

Claim 1 has been amended and is now directed to a device for analyzing a test material with respect to the presence of trace quantities of atoms in the range of atomic number at least between 45 and 69, and, at the same time, atoms in the range of atomic number at least between 22 and 44, without changing radioactive sources.

The office action has cited the Gamba reference as anticipatory. Gamba requires the changing of a radioactive source in order to measure trace elements in the range between 22 and 44 and 45 and 69 unlike the invention as claimed. Gamba is much like the prior art systems described in the background that require different radiation sources including ^{55}Fe ^{109}Cd and ^{241}Am to measure elements within these atomic numbers. Col. 2 line 64 to Col.3 line 4 of Gamba indicates that a user needs to select the proper radiation source for the desired test using the Kevex Application Guide which shows that radiation sources would need to be changed. Further, the Gamba reference does not include a cover which allows the transmission of both x-rays and gamma rays to the test material as required by claim 1. Additionally, such a cover would not be of any use, since Gamba doesn't use gamma rays. Since the

Gamba reference does not measure trace elements in the atomic range between 22 and 44 and 45 and 69 without requiring the changing of radioactive sources and does not include a cover which allows the transmission of both x-rays and gamma rays of the radioactive source, claim 1 is allowable in view of the Gamba reference.

Claim 15 as amended is directed to a method for analyzing a test material. The method requires the step of "generating a spectrum scaled according to an intensity of a Rayleigh scattering line associated with an x-ray line of the source." Claim 15 also requires exposing the test material to both x-rays and gamma rays from the radioactive source. The Gamba reference does not include such limitations and therefore claim 15 is also not anticipated by Gamba. A user of the Gamba system selects a radio-active source and exposes the source only to the x-rays of the source. Nowhere in the Gamba patent does it mention that the test material is exposed to both x-rays and gamma rays. By generating and subtracting a scatter spectrum scaled according to an intensity of a Rayleigh scattering line associated with an x-ray line of the source as claimed, trace elements in the test material can be measured which would otherwise be unobservable due to the overlapping of the Rayleigh scattering with the trace elements x-ray lines.

Claims 5, 6, 12, 26 and 29 each depend from an allowable independent claim and add at least one additional limitation and are therefore allowable over the art of record for the same reasons.

§103

The office action relies on the Gamba reference as its only reference for rejecting claims 10, 11, 14, 22, 23 and 24 as being obvious. As previously stated, Gamba is not directed to a device for analyzing a test material with respect to the presence of trace quantities of atoms in the range of atomic number at least between 45 and 69, and, at the same time, atoms in the range of atomic number at least between 22 and 44, without changing radioactive sources as required by claim 1. Also, Gamba does not expose the test material to both x-rays and gamma rays from the radio-active source and does not

generate a spectrum scaled according to an intensity of a Rayleigh scattering line associated with an x-ray line of the source as required by claim 15.

Therefore, dependent claims 10, 11, and 14 which depend from claim 1 and dependent claims 22, 23, and 24 which depend from claim 15 are allowable for the same reasons.

Claims 19-21 and 23-38 are rejected over Gamba in view of Ahlquist. Gamba lacks the teaching of exposure of the sample to both x-rays and gamma rays, and this teaching is neither provided by Ahlquist; in fact. The Ahlquist reference merely measures "clean" air and "aerosol-containing" air and determines the properties of the aerosols by comparing the two spectra. There is no reference to x-rays or gamma at all. Therefore, since neither Gamba nor Ahlquist alone or in continuation teaches all of the limitations of independent claim 15, claims 19-21 and claims 23-38 and new claim 39 all of which depend from claim 15 are allowable for the same reasons.

For the reasons set forth above, it is submitted that all pending claims are now in condition for allowance. Reconsideration of the amended claims and a notice of allowance are therefore requested. It is not believed that an extension of time is required for this matter. If any additional fees are required for the timely consideration of this application, please charge deposit account number 19-4972. The Examiner is requested to telephone the undersigned if any matters remain outstanding so that they may be resolved expeditiously.

Respectfully submitted,



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